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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,908	11/13/2003	Anton Nekovar	32860-000660/US	7317
30596 7590 10/03/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O.BOX 8910 RESTON, VA 20195			EXAMINER HO, ALLEN C	
			ART UNIT 2882	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/705,908	NEKOVAR, ANTON	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8,11,12,15,17,18,20-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8,11,12,15,17,18,20-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 26 recites the limitation "incident light". There is insufficient antecedent basis for this limitation in the claim.
4. Claim 26 recites the limitation "the image system". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. Claim 26 is rejected under 35 U.S.C. 102(e) as being anticipated by Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1).

With regard to claim 26, Tamura *et al.* disclosed a diagnostic system (Fig. 21) that comprises: a CCD camera including an image converter (5004; paragraph [0013]); a device (x-ray radiation switch) for generating external trigger pulses (paragraph [0012]); and a system control (5002) configured to: (1) control a readout of the CCD camera without a desired signal including image information at regular time intervals (TI) in response to rest pulses (Vr) at regular intervals (TI) in the absence of x-radiation (paragraph [0037]); and (2) control triggering of a readout of the CCD camera without a desired signal including image information and a subsequent triggering of an exposure of the CCD camera when an external trigger pulse (x-ray radiation request signal) occurs at a point (T1) in time at which no read out of the CCD camera is to take place (T1 is a timing other than those of the refresh and idle read processes, paragraphs [0037], [0038], and [0044]); wherein if the time elapsed ($\leq TI$ when an external trigger pulse occurs during a readout/initialization) between a most recent rest pulse and an external trigger pulse is less than a duration ($TI = T5 - T1$) of the readout (initialization) of the CCD camera without a desired signal including image information, a readout without a desired signal including image information is suppressed (interrupted), and exposure of the CCD camera is triggered directly by the external trigger pulse (paragraph [0045]), and the image converter accumulates charge in a light-sensitive region (5021) and transfers the accumulated charge to a memory region (5026) by the trigger pulse (paragraph [0035]), the memory region being separate from incident light, wherein after transferring the accumulated charge, the actual exposure of the light-sensitive region of the image converter is performed, and actual readout of the accumulated

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charge corresponding to the exposure is performed and fed into the image system as a video signal.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3, 17, 18, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) in view of Mazess *et al.* (U. S. Patent No. 6,282,261 B1).

With regard to claim 1, Tamura *et al.* disclosed a diagnostic system (Fig. 21) that comprises: a CCD camera (5004; paragraph [0013]); a device (x-ray radiation switch) for generating external trigger pulses (paragraph [0012]); and a system control (5002) configured to: (1) control a readout of the CCD camera without a desired signal including image information at regular time intervals (TI) in response to rest pulses (Vr) at regular intervals (TI) in the absence of x-radiation (paragraph [0037]); and (2) control triggering of a readout of the CCD camera without a desired signal including image information and a subsequent triggering of an exposure of the CCD camera when an external trigger pulse (x-ray radiation request signal) occurs at a point (T1) in time at which no read out of the CCD camera is to take place (T1 is a timing other than those of the refresh and idle read processes, paragraphs [0037], [0038], and [0044]); wherein if the time elapsed ($\leq TI$) when an external trigger pulse occurs during a

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readout/initialization) between a most recent rest pulse and an external trigger pulse is less than a duration ($TI = T5 - T1$) of the readout (initialization) of the CCD camera without a desired signal including image information, a readout without a desired signal including image information is suppressed (interrupted), and exposure of the CCD camera is triggered directly by the external trigger pulse (paragraph [0045]).

However, Tamura *et al.* failed to disclose an x-ray image amplifier having a fluorescent output screen, and a CCD camera coupled to the fluorescent output screen of the x-ray image amplifier via an optical system.

Mazess *et al.* disclosed an x-ray image amplifier having a fluorescent output screen (374), and a CCD camera (375, 504, 558) coupled to the fluorescent output screen of the x-ray image amplifier via an optical system (502, 508). Such an imaging system allows a zooming feature useful for providing higher resolution and greater magnified images (column 25, lines 40-48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employing an x-ray image amplifier having a fluorescent output screen, and a CCD camera coupled to the fluorescent output screen of the x-ray image amplifier via an optical system, since a person would be motivated to magnify a region of interest for a closer look.

With regard to claim 3, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 1, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera is to take place, a readout without a useful signal is initially

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carried out and then the diagnostic system is subsequently triggered for the emission of x-radiation via an x-ray emitter (Tamura *et al.*, paragraphs [0038]-[0044]).

With regard to claim 17, Tamura *et al.* disclosed a diagnostic system, comprising: a CCD camera (5004); means (x-ray radiation switch) for generating an external trigger pulse; and means (5002) for providing a readout of the CCD camera without a desired signal including image information in response to reset pulses (V_r) generated at regular intervals (T_I) and before an exposure of the CCD camera when an external trigger pulse (x-ray radiation request signal) is generated at a time when no readout of the CCD is to take place (T_1 is a timing other than those of the refresh and idle read processes, paragraphs [0037]-[0044]), and for suppressing (interrupting) a (current) readout (initialization) without a desired signal including image information before an exposure of the CCD camera when an external trigger pulse is generated at a time when a readout of the CCD camera is to take place (paragraph [0045]), wherein if the time elapsed ($\leq T_I$ when an external trigger pulse occurs during a readout/initialization) between a most recent reset pulse and an external trigger pulse is less than a duration ($T_I = T_5 - T_1$) of the readout (initialization) of the CCD camera without a desired signal including image information, a readout without a desired signal including image information is suppressed (interrupted), and exposure of the CCD camera is triggered directly by the external trigger pulse (paragraph [0045]).

However, Tamura *et al.* failed to disclose an x-ray image amplifier having a fluorescent output screen, and a CCD camera coupled to the fluorescent output screen of the x-ray image amplifier via an optical system.

Mazess *et al.* disclosed an x-ray image amplifier having a fluorescent output screen (374), and a CCD camera (375, 504, 558) coupled to the fluorescent output screen of the x-ray image amplifier via an optical system (502, 508). Such an imaging system allows a zooming feature useful for providing higher resolution and greater magnified images (column 25, lines 40-48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employing an x-ray image amplifier having a fluorescent output screen, and a CCD camera coupled to the fluorescent output screen of the x-ray image amplifier via an optical system, since a person would be motivated to magnify a region of interest for a closer look.

With regard to claim 18, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 17, wherein the means for providing is configured to read the CCD camera without a useful signal at a regular time intervals in the absence of x-radiation (Tamura *et al.*, paragraph [0037]).

With regard to claim 20, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 17, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera is to take place, a readout without a useful signal is initially carried out and then the diagnostic system is subsequently triggered for the emission of x-radiation via an x-ray emitter (Tamura *et al.*, paragraphs [0037]-[0044]).

With regard to claim 21, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 1, wherein the external trigger pulses are generated in a non-predetermined fashion (when x-ray radiation switch is pressed).

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With regard to claim 22, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 1, wherein the external trigger pulses are generated in a non-periodic fashion (when x-ray radiation switch is pressed).

With regard to claim 23, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 17, wherein the external trigger pulses are generated in a non-predetermined fashion (when x-ray radiation switch is pressed).

With regard to claim 24, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claim 17, wherein the external trigger pulses are generated in a non-periodic fashion (when x-ray radiation switch is pressed).

9. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) and Mazess *et al.* (U. S. Patent No. 6,282,261 B1) as applied to claims 1 and 3 above, and further in view of Haaker *et al.* (U. S. Patent No. 5,117,446).

With regard to claims 4 and 8, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claims 1 and 3. However, Tamura *et al.* and Mazess *et al.* failed to teach that the device for generating external trigger pulses is an ECG electrode.

Haaker *et al.* disclosed a diagnostic system comprising an ECG electrode (26) for generating external trigger pulses. Haaker *et al.* taught that the same cardiac phase could be repeatedly imaged by synchronizing the x-ray pulses with an ECG signal (column 3, lines 30-39).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ an ECG for generating external trigger pulses, since a person

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would be motivated to examine a particular cardiac phase by synchronizing x-ray pulses with an ECG signal.

10. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) and Mazess *et al.* (U. S. Patent No. 6,282,261 B1) as applied to claims 1 and 3 above, and further in view of Watanabe *et al.* (U. S. Patent No. 6,412,978 B1) and Casey *et al.* (U. S. Patent No. 5,175,754).

With regard to claims 5 and 11, Tamura *et al.* and Mazess *et al.* disclosed the diagnostic system as claimed in claims 1 and 3. However, Tamura *et al.* and Mazess *et al.* failed to teach that the device for generating external trigger pulses is an angle sensor mounted at a C-arm of the diagnostic system.

Watanabe *et al.* disclosed a diagnostic system that comprises a C-arm and an angle sensor (81) mounted at the C-arm.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to mount the diagnostic system disclosed by Tamura *et al.* on the C-arm disclosed by Watanabe *et al.*, since a person would be motivated to image a patient from different imaging angles.

Casey *et al.* disclosed a diagnostic system that comprises a device (36) for generating external trigger pulses (42), which triggers an x-ray controller (30) and a data acquisition system (34). Casey *et al.* taught that this device could be programmed to generate a trigger pulses that are a function of signal pulses of an angle sensor (40), which provides imaging flexibility (column 3, line 41 column 4, line 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a device disclosed by Casey *et al.* for generating trigger pulses, since a person would be motivated to control the frequency of a triggering pulse.

11. Claims 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1), Mazess *et al.* (U. S. Patent No. 6,282,261 B1), and Haaker *et al.* (U. S. Patent No. 5,117,446) as applied to claims 4 and 8 above, and further in view of Watanabe *et al.* (U. S. Patent No. 6,412,978 B1) and Casey *et al.* (U. S. Patent No. 5,175,754).

With regard to claims 12 and 15, Tamura *et al.*, Mazess *et al.*, and Haaker *et al.* disclosed the diagnostic system as claimed in claims 4 and 8. However, Tamura *et al.*, Mazess *et al.*, and Haaker *et al.* failed to teach that the device for generating external trigger pulses is an angle sensor mounted at a C-arm of the diagnostic system.

Watanabe *et al.* disclosed a diagnostic system that comprises a C-arm and an angle sensor (81) mounted at the C-arm.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to mount the diagnostic system disclosed by Tamura *et al.* on the C-arm disclosed by Watanabe *et al.*, since a person would be motivated to image a patient from different imaging angles.

Casey *et al.* disclosed a diagnostic system that comprises a device (36) for generating external trigger pulses (42), which triggers an x-ray controller (30) and a data acquisition system (34). Casey *et al.* taught that this device could be programmed to generate a trigger pulses that are a function of signal pulses of an angle sensor (40), which provides imaging flexibility (column 3, line 41 column 4, line 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a device disclosed by Casey *et al.* for generating trigger pulses, since a person would be motivated to control the frequency of a triggering pulse.

Response to Arguments

12. Applicant's arguments filed 13 September 2007 have been fully considered but they are not persuasive.

With respect to the rejection of claims 1 and 17, the applicant argues that Tamura *et al.* failed to disclose a system control that suppresses a readout without a desired signal including image information and trigger exposure of the CCD camera directly by the external trigger pulse if the time elapsed between a most recent reset pulse and an external trigger pulse is less than a duration of the readout of the CCD camera without a desired signal including image information. Specifically, the applicant asserts that Tamura *et al.* disclosed an initialization process that is interrupted in response to the external trigger, not suppressed. The examiner respectfully disagrees. It is noted that the feature upon which applicant relies is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). There is nothing in the claims that forbids the initialization process from restarting from the beginning in response to the external trigger. A temporary suppression of the current/immediate readout of the CCD camera would still read on the claims. Furthermore, the applicant argues that the exposure of the CCD camera is not triggered directly by the external trigger pulse because the initialization process is performed prior to exposure.

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The examiner respectfully disagrees. Again, the applicant relies on feature not recited in the rejected claims. The exposure of the CCD camera is a direct result of the external trigger.

Therefore, the rejections are maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen C. Ho/
Primary Examiner
Art Unit 2882

28 September 2007